Identified Competency Focus Areas and Core Courses for National Exit Examination

Program: Bachelor of Pharmacy

Bachelor of post basic Pharmacy

Compiled By:

1. Alemseged Beyene (Addis Ababa University)
2. Solomon Assefa (Addis Ababa University)
3. Mesay Dechasa (Haramaya University)
4. Belachew Boranto (Arbaminch University)

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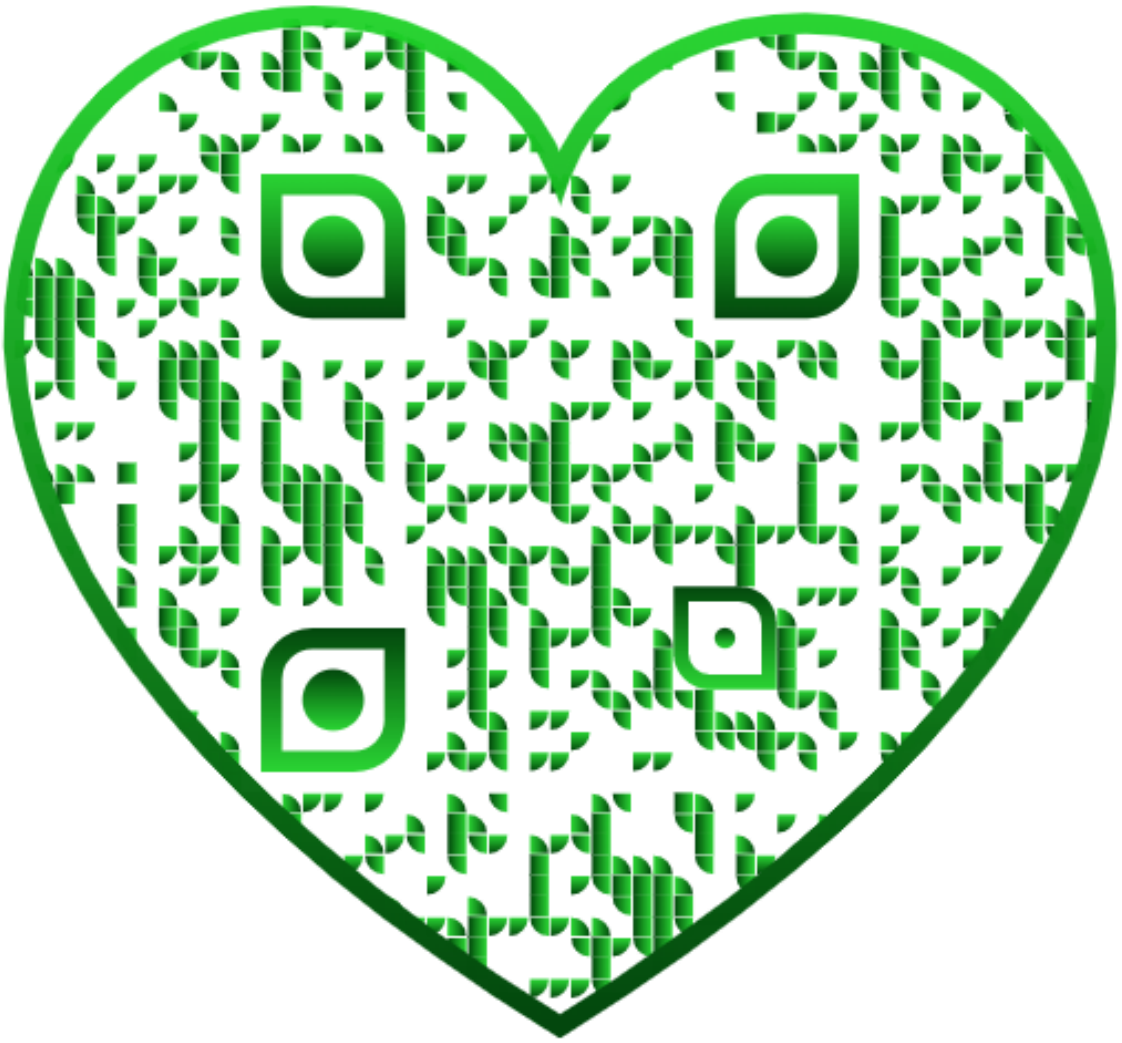

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1. Introduction

Ethiopian has made several efforts to scale up the national health system. The achievements made clearly improved major indicators in the healthcare delivery system. Despite the success, the country still faces lower health service coverage, which is typically manifest by lowest ratio of health professional to the population. In order to tackle healthcare predicaments, Ethiopia has developed workable health policies primarily focusing on health promotion and disease prevention. These policies necessitate the presence of well-trained healthcare professionals. Likewise, the pharmacy service, as an essential component of the health care delivery system, requires properly trained pharmacy professionals.

There are several challenges in the national health care system including the emergence antimicrobial resistance, medicine wastage, irrational medication use, shortage of medicine and medical supplies, less developed pharmaceutical care and poor drug/vaccine safety monitoring system. To overcome these problems, the system demands the presence of competent and qualified pharmacy professionals.

The primary mission of the pharmacy profession is to have a positive impact on the provision of public health service by ensuring the safe and effective use of medications. There are various facets to this mission, including the preparation and distribution of medications, as well as provision of pharmaceutical care to ensure appropriate therapy and desired outcome.

Pharmacy expertise laid its foundations with evidence based pharmaceutical science, health science, medical science and related areas. The profession encompasses the clinical, industrial, regulatory and community settings. In fact, a competent graduate in pharmacy can improve the health care system in which subsequently to realize the Ethiopia Health Sector Transformation Plan. Thus, implementing exit exams for Pharmacy Bachelor degree program graduates will have a great implication in producing competent citizens in knowledge, skill, and attitude through a comprehensive assessment of learning, which makes a better understanding of how the pharmaceutical sector generally works.

Ministry of Education is working on providing exit exams for undergraduate programs starting from the 2015 E.C academic year. Implementing an exit exam as an intervention strategy is instrumental to evaluate the desired level of competency and learning outcome achieved by

graduates. Hence, competence-based comprehensive examination/s conduct upon the completion of the graduate program. This document aims to identify competency focus areas and core courses for national pharmacy graduates exit examination.

Objectives of Exit Examination

Introduction of exit exam in Ethiopian higher education system will enables universities to produce competent graduates in all programs including pharmacy bachelor program. It is also important to assure quality of pharmacy education.

The following are the major objectives of pharmacy students exit examination:

- To measure the extent to which the skills needed for employment in the pharmaceutical sector have been achieved among the Undergraduate Pharmacy students;
- To ensure the quality of pharmacy education;
- To improve the relevance of academic programs and practical performance;
- To assess whether pharmacy program graduates attain the graduate profile or not
- To produce skilled and competent manpower for local, national, and international markets;
- To ensure that graduates achieve the required learning outcomes and hence meet the graduate profile of the curriculum.

Moreover, it is important to set competency areas of the program in order to measure how much graduates are acquired skills, knowledge, and attitudes. **The following shows us the significance of setting competencies and identifying core courses of the program**:

- To set competencies that helps to assess the basic skills, knowledge and attitude of graduating students;
- To systematically identify the core courses which will be included the exit exam;

2. Expected Profiles of Graduates

It is envisaged that pharmacy graduates who has successfully completed the Bachelor Pharmacy degree will be able to apply his/her knowledge, skills, and attitudes as follows:

Core graduate competencies

- Organize and control the manufacturing, compounding and packaging of pharmaceutical products;

- Organize the selection, procurement, storage, and distribution of pharmaceutical materials and products;
- Provide Pharmaceutical Care to ensure the optimal use of medicines by the patient;
- Dispense medicine with appropriate patient counseling;
- Provide education and information on health care and medicines;
- Promote community health and provide related information and advice;
- Demonstrate a high level of professional ethics in order to satisfy the pharmaceutical needs of the society.
- Maintain and expand knowledge through self-directed learning.
- Be able to work as a member of the health team.
- Possess the necessary background to pursue further advanced study in the pharmaceutical sciences.
- Conduct research to ensure the optimal use of medicines.

3. Competences and Learning Outcomes

3.1. Competences

Currently, the competency of students will be measured by national exit examination at the end of completion of Pharmacy courses with a great emphasis on students' knowledge, skill, and attitude. The details of the competencies are presented below.

Table 1: Expected core competences of pharmacy graduates

Domain	Competencies
Knowledge	• Possess the necessary background to pursue further advanced study in the pharmaceutical sciences • Provide pharmacist-initiated care to patients and ensure the optimal use of medicines • Provide education and information on health care and medicines • Promote community health and provide related information and advice • Demonstrate a high level of professional ethics in order to satisfy the pharmaceutical needs of the society • Maintain and expand knowledge through self-directed learning • Familiarity with the latest laws, directives and guidelines governing the pharmaceutical sector • Use his/her critical thinking to improve the pharmacy working environment

	• Familiarize him/her with latest scientific findings to improve the quality of services rendered to the society • Participate in research to ensure the optimal use of medicines
Skills	• Provide Pharmaceutical Care and Dispense and ensure the optimal use of medicines by the patient • Communicate effectively both verbally and in writing • Collect, document, retrieve and interpret data related to all their activities clearly and safely • Organize and control the manufacturing, compounding and packaging of pharmaceutical products • Monitor and maintain proper functioning of necessary equipment/reagents • Develop and modify laboratory procedures • Prepare educational materials to promote the rational use of medicines and medical devices • Screen for drug abuse and refer patients to appropriate care Centre • Engage in policy, professional standards, and continuing professional development issues pertaining to pharmacy profession • Store and use laboratory supplies and dispose expired drugs safely according to the rules and regulations • Organize the selection, procurement, storage, and distribution of pharmaceutical materials and products • Plan drugs and equipment logistic procurement, evaluation, setup and auditing • Monitor the inventory in storage, work and laboratory area • Provide professional services, leadership and quality assurance in work areas • Demonstrate leadership and management skills • Participate and/or conduct research and development of new drugs discovery technologies
Attitudes	• Advocate the proper use of necessary materials by screening • Recognize, adhere to and promote established safety rules • Be able to work as a member of the health team • Maintain the pharmacy ethical code of conduct standards • Contribute to stewardship of their profession • Pursue graduate training in pharmacy and other health related disciplines • Respectful and compassionate to patients, their relatives and other professionals • Institute and promote safety, quality control and quality assurance in their allowed work area • Participate in policy, professional standards, continuing professional

3.2. Learning Outcomes

After completing those courses presented on the themes mentioned below, graduating students will be able to:

- Recommend appropriate treatment regimen for patients;
- Set goals of treatment and select treatment options for the management of each disease states;
- Formulate dose recommendations and pharmacokinetic considerations for individual patient management;
- Monitor clinically significant adverse drug reactions and drug interactions;
- Evaluate therapeutic outcomes for effectiveness, safety and patient adherence;
- Develop and exercise pharmaceutical care planning for managing a specific patient condition
- Provide patient medication counselling and drug information
- Explain the pharmacological actions, mechanism of actions, and therapeutic uses and pharmacokinetics of drugs.
- Apply concept and principles of pharmacology to ensure the rational use of drugs.
- Develop the knowledge and skills of formulation, compounding and dispensing of different dosage forms;
- Select and characterize appropriate formulation excipients and packaging materials for pharmaceutical dosage forms and labelling;
- Identify the different types of formulation incompatibilities and their effect on the physicochemical and therapeutic performance of products
- Capable of developing formulation and manufacture various pharmaceutical dosage forms (conventional and biopharmaceutical products) and evaluate their qualities.
- Provide service that ensure rational usage of natural products
- Able to undertake crude drugs extraction and isolation and identify the main classes of secondary metabolites

- Realize the importance of pharmaceutical quality control and the regulatory process in assuring the quality, efficacy and safety of drug and related products
- Able to select the appropriate analytical techniques for a given sample type to detect and quantify drugs
- Render pharmaceutical services in the context of the Ethiopian health care system and national drug policy
- Actively participate in manage, store and distribute the drugs, medical supplies, equipment and reagents.
- Effectively communicate with patients and other health professionals to promote rational medicine use and marketing of pharmaceuticals
- Demonstrate management skills to lead a health care program
- Use the appropriate tools to investigate appropriateness of medicine use;
- Prepare list of essential drugs and supplies at health facilities or national level.
- Perform estimation (forecasting) of the quantities of drugs and supplies needed.
- Practice appropriate documentation and reporting of drugs on stock, expired drugs and drug consumption and related activities to appropriate persons and/or organizations.

4. Categorizing Courses of the Program in to Themes

National Exit Examination in pharmacy program for undergraduate students' competency has five themes. These are Pharmaceutical care, Dispensing and drug information services, Pharmaceutical sciences and technology, Pharmaceutical supply chain management, and Pharmacy law and professional ethics**.**

The contents of the exams are determined based on the competencies and learning outcomes that graduates are expected to achieve. Therefore, this guideline provides the expected profile of the graduate, the detail core competency areas and learning outcomes, the thematic areas and the list of major courses to be included in the exit exam under each thematic area (**Table 2**).

Table 2: List of Themes in Pharmacy Programs and their shares in the Exit Examination.

S.No.	List of Themes in Pharmacy Program	Cr.hr	Shares in %
1.	Pharmaceutical care	28	35
2.	Pharmaceutical Sciences and technology	34	42.5
3.	Pharmaceutical Supply Management	5	6.25
4.	Pharmacy Law and Professional Ethics	2	2.5
5.	Dispensing and drug information services	11	13.75
	Total	**80**	**100%**

5. Courses to be Included in the Exit Examination

The current national exit examination guide document for pharmacy students laid its foundation on five thematic areas of the program: Pharmaceutical care, dispensing and drug information service, pharmaceutical technology, pharmaceutical supply chain management and pharmacy law and ethics. These thematic areas are further split into seventeen courses. It is, however, obvious that within the 5-year period of the program several numbers of courses are delivered. Despite the existence such plenty of courses in pharmacy, the quality and competency improvement desk at Ministry of Education has already declared that a single program should include a maximum of 15 courses (10-15) in this guiding document. Accordingly, 15 courses, from different academic year and semester of the 5-year study period, are identified based on the selected core competences and graduate profile expected from pharmacy students **(Table 3)**.

Table 3: Courses to be included in the National Exit Examination from different thematic areas.

S. No	List of Themes	List of courses	Course credit	
			ECTS	Cr.hrs
1	**Pharmaceutical care (35%)**	Integrated Pharmacotherapeutics I-IV	28	16
		Internal Medicine clerkship	7	4
		Paediatrics clerkship	7	4
		Ambulatory clerkship	7	4
		Total	**49**	**28**
2	**Pharmaceutical Sciences and technology (42.50%)**	Pharmacology I and II	14	8
		Pharmaceutical analysis I and II	14	8
		Integrated physical pharmacy and pharmaceutics-I and II[#]	18	10
		Pharmacognosy	7	4
		Industrial pharmacy	7	4
		Total	**60**	**34**
3	**Pharmaceutical Supply Management (6.25%)**	Drug Supply management	5	3
		Medical supplies, equipment and reagents	3	2
		Total	**8**	**5**
4	**Pharmacy Law and Professional Ethics (2.5%)**	Pharmacy law and ethics	3	2
		Total	**3**	**2**
5	**Dispensing and Drug Information Services (13.75%)**	Drug informatics	3	2
		Pharmacy practice	12	7
		Communication skill for pharmacists	3	2
		Total	**18**	**11**

6. Conclusion

Implementing and developing an exit examination guide that ultimately relies on students' competences on pharmacy program reinforces our graduates to have a solid understanding of pharmaceutical care, pharmaceutical supply chain management, dispensing and drug information services, pharmacy technology, and pharmacy law and ethics. This in turn enables them to play a pivotal role in the overall healthcare delivery system, which primarily benefits patients get optimal treatment by improving the quality of pharmaceutical service in clinical, community and other settings.

The realization of providing an exit examination to graduating pharmacy students ensure pharmacy bachelor degree students to well received the learning outcomes of the courses delivered under the five domains of undergraduate pharmacy program. It will further make students understand how the pharmaceutical science evolved at present and future vision of the field and make them up-to-date with the dynamism of the field.

Generally, the fruitfulness and success of the national exit examinations need a concerted effort and determination from concerned government bodies and the Academia. Besides this, student should obey their responsibilities in the examination. This is because this national exit examination primarily aims at producing highly qualified professionals in pharmacy that will benefit the country's healthcare system. The national exit examination offers a comprehensive basis for graduates' careers and further education in pharmacy on the identified course lists and themes.

Therefore, the academicians, students and other stakeholders are expected to be responsible for the successfulness of the **National Exit Examination.**

Annex

This document is compiled by:

1. Alemseged Beyene (Associate Prof, Addis Ababa University, School of Pharmacy) alemseged.beyene@aau.edu.et
2. Solomon Assefa (Assistant Prof, Addis Ababa University, School of Pharmacy) Solomon.assefa@aau.edu.et
3. Mesay Dechasa (MSc, Haramaya University, School of Pharmacy) mesay.dechasa@haramaya.edu.et
4. Belachew Boranto (MSc, Arbaminch University, School of Pharmacy) mr.yes2006@gmail.com

Validated by:

1. Abyot Endale (Associate Prof., University of Gondar, School of Pharmacy) abyot.endale@gmail.com